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PESP UPDATE

PESP is a voluntary public/private partnership committed to reducing the risks from pesticides in agricultural and nonagricultural settings

NEW MEMBERS

PARTNERS

Central Coast Vineyard Team
Hawaii Papaya Industry Association
New York Power Authority
Southwest School IPM Technical Resource Center
Washington State Department of Agriculture
Wisconsin Apple Growers Association

SUPPORTERS

ReMetrix LLC
Organic Materials Review Institute
Sonoma County Grape Growers Association

WHAT'S INSIDE

EPA DESIGNATES *PESP CHAMPIONS*

In December 2002, EPA selected eighteen members of the Pesticide Environmental Stewardship Program as *PESP Champions* based on their outstanding efforts promoting integrated pest management (IPM), reducing pesticide risk, and protecting human health and the environment.

As documented in their PESP Strategies, the PESP Champions used many IPM tools to reduce pesticide risk: sampling to accurately determine pest population levels; training and demonstration of IPM practices; biologically-based technologies to control or manage pests; cultural practices such as crop rotation or removing food and habitat for structural pests; and less toxic or reduced-risk pesticides, such as insect growth regulators.

The PESP Champions received framed awards and press materials.

Want to become a 2003 PESP Champion? Contact your EPA Liaison today!

2002 PESP CHAMPIONS

American Pest Management, Inc.
California Dried Plum Board
California Melon Association
Cranberry Institute
Gerber Products Company
Glades Crop Care, Inc.
Golf Course Superintendents Association of America
Lodi-Woodbridge Winegrape Commission
Low Input Viticulture and Enology of Oregon
Massey Services, Inc.
Michigan Cherry Committee
Monroe County School Corporation
National Grape Cooperative
New York City Board of Education
Northeast Utilities
Pineapple Growers Association of Hawaii
U.S. Department of Defense Armed Forces Pest Management Board
U.S. Hop Industry Plant Protection Committee

REGIONAL PESP GRANT FUNDING AVAILABLE

On March 19, EPA announced the availability of approximately $500,000 for Regional PESP Grants. This funding is for grants to States and federally recognized Native American Tribes for research, public education, training, monitoring, demonstrations, and studies that advance pesticide risk reduction. Funding is limited to $40,000 per project. These grants are awarded and administered by EPA's Regional Offices. Additional information is available on EPA's website at www.epa.gov/oppbppd1/PESP/regional_grants.htm

PLANTING SEEDS FOR SAFER LAWN CARE
EPA AND THE CENTER FOR RESOURCE MANAGEMENT

Trends in pesticide use are changing. Agricultural land covers over 50 percent of the continental United States and traditionally has accounted for the majority of pesticide use, while urban and suburban areas cover only five percent of the country.

A recent study on "The Quality of Our Nation's Waters" by the U.S. Geological Survey found that, in fact, insecticides are detected at higher frequency and usually at higher concentrations in urban streams than in agricultural streams. Most common are diazinon, carbaryl, chlorpyrifos, and malathion. Herbicides such as atrazine, simazine, and prometon are used on lawns and can be found in streams in urban areas, as well. (They also are applied for weed control along highways, rights-of-way, and on golf courses.)

All of these pesticides are commonly used on lawns and turf in cities and suburbs. The popular organophosphates, chlorpyrifos and diazinon, are being phased-out. However, their replacements, such as synthetic pyrethroids, can still be found in stormwater runoff. New, less toxic alternatives, such as the insect growth regulator halofenozide, are promising. However, such alternatives often require more knowledge on the part of the consumer about pest identification and biology.

To help consumers and promote more sustainable lawn care practices, the Center for Resource Management (CRM), EPA, and other partners formed the *Lawns and the Environment* Initiative in 2002. This initiative is bringing together environmental, business, and government leaders to build consensus and improve the effectiveness of educational programs targeting lawn care. These programs will provide information on the environmental benefits of turf and other residential landscapes and the environmental costs associated with improper lawn care practices.

EPA's Office of Pesticide Programs allocated $40,000 to start the initiative and assemble a steering committee. The steering committee includes EPA, USDA, Scotts Company, Professional Lawn Care Association of America, National Audubon Society, and National Wildlife Federation. The Center for Resource Management is working with EPA and other steering committee members to fund a national conference in 2004 to explore methods of public awareness and education.

Other parts of EPA are getting involved, as well. For example, Region III and the Chesapeake Bay Program are planning a regional pilot program to help *save the Bay* based on the successes of the Bay Area Storm Management Association (BASMA) program in San Francisco. Regions IV and VI and the Offices of Water and Solid Waste also have expressed interest in the initiative.

Stay tuned to see what is learned and achieved by *Lawns and the Environment* during the coming years.

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EARTH DAY EVENT IN ST. MICHAELS, MD

The weekend of April 26-27, the National Audubon Society is hosting environmental tours of the Jean Ellen duPont Shehan Sanctuary in Bozman, MD. The sanctuary offers environmental education programs for school groups and the general public. *(The National Audubon Society also participates in the Lawns and Environment Initiative - see related article).* For more information on the Sanctuary, go to www.audubonmddc.org

The Potomac Pedaler Touring Club is sponsoring a weekend bike tour on Maryland's Eastern Shore in conjunction with Earth Day. Information on lodging, meals, fact sheets, roundtable discussions on environmental conditions and trends, and a 2004 Tour of the Chesapeake Bay Watershed can be found at www.bikepptc.org

Note: While these events are not sponsored or specifically endorsed by EPA or PESP, they encourage and promote environmental awareness, a key component of environmental stewardship.

FOCUS ON:
BIOPESTICIDE REGULATORY DECISIONS

NEW FUNGICIDE TO CONTROL LEAFSPOT AND BLIGHT DISEASES

In February, EPA registered *Bacillus licheniformis* Strain SB3086, a naturally occurring bacterium for use on ornamental plants, turf, lawns, and golf courses to prevent and treat many fungal diseases, especially leafspot and blight.

This new active ingredient is a common soil microorganism that contributes to nutrient cycling and displays antifungal activity.

Research indicates that the bacterium acts against fungi by producing an antibiotic agent, and possibly an anti-fungal enzyme.

At this time, there is only one registered product containing this biopesticide: Novozymes Biofungicide Green-Releaf™ 710-140. The product can either be diluted in water and sprayed on leaves or applied to soil.

PROMISING PLANT GROWTH REGULATOR HAS MANY USES

Last March, EPA registered Lysophosphatidylethanolamine (LPE) as a plant growth regulator with several uses.

In agriculture, LPE can be used to accelerate ripening and improve the quality of fresh fruits and vegetables. LPE increases the rate of ripening by stimulating the plant to produce more ethylene, a natural ripening substance.

As a crop ripener, applicators can spray on crops 7-10 days before harvest, or 20-30 days before harvest and every 7-10 days thereafter until harvest.

Indoors LPE can be used to preserve stored produce and cut flowers.

By inhibiting one of the enzymes that breaks down cell membranes, LPE helps keep the membranes healthy and increases the shelf life.

As a preservative, it can be applied as a post-harvest dip for produce and as an additive to maintain cut flowers.

The only product available at this time is sold under the trade name LPE-94 10% Aqueous Growth Regulator™.

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NATIONAL IPM SYMPOSIUM/WORKSHOP

As we go to press, the 4th National Integrated Pest Management (IPM) Symposium/Workshop in Indianapolis, Indiana, is underway. The Workshop runs April 7 - 10.

With coordination by USDA, the symposium will feature speakers, posters, workshops, and informal conferences.

The goal of the symposium is to share pest management successes and challenges and build alliances for the future of IPM. All disciplines relating to IPM – weed science, plant pathology, vertebrate management, entomology, nematology, horticulture, agronomy, communications, economics, and sociology – are encouraged to participate.

Workshop planners anticipate representation from diverse interests: government agencies, universities, advocacy groups, IPM practitioners in agricultural and nonagricultural settings, sustainable agriculture, pesticide applicator trainers, and other pest management fields.

This symposium will launch the *National Roadmap for IPM*, a 10-year vision for IPM in the United States.

The symposium will address biological control, risk assessment, invasive species, the building of alliances, urban IPM, international IPM, IPM in schools, new IPM technologies, IPM for vertebrate pests, communicating and marketing IPM, and transitioning to ecologically-based IPM.

Additional information is available on the Workshop website: autilus.outreach.uiuc.edu/conted/conference.asp?ID=244. Highlights from the meeting will be featured in the next issue of the PESP Update.

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STARTING A TREND WITH AN IPM MODEL FOR SCHOOLS:
MONROE COUNTY, INDIANA

The Monroe County Community School Corporation (MCCSC) in Indiana has been a PESP Partner since 1996. During this period, the County has fully implemented an IPM program for 20 facilities with over 10,000 students, 14 extended-day program schools, and one infant care program.

MCCSC program results:

- 92% reduction in pesticide use;
- cost savings from the creation of a district-wide coordinator for pest management; and
- recipient of Indiana's 1997 Governor's Award for Excellence in Pollution Prevention.

An enduring partnership of state government (Indiana Department of Environmental Management), universities (Indiana University and Purdue University), private industry (pest control operators), and MCCSC has flourished and successfully extended IPM to other school corporations and daycare facilities in the state of Indiana. Based on Indiana's success in implementing IPM in its schools, the model has been piloted and transferred to several areas nationally. This model is appropriately named the *Monroe IPM Model*.

Today, the *Monroe IPM Model* is impacting over one million children. The model is a 22-step process reliant on intensive communication and partnership and based on sound pest management as practiced by national experts.

School districts in Alabama, Arizona, California, Indiana, and the Navajo Indian Reservation use this model for the implementation of IPM in schools. The average pesticide reduction has been 90% with a similar reduction in pest problems.

Each initial adopting team of the *Monroe IPM Model* has developed statewide educational programs, served as models within their states, and provided "peer" implementers for their states under agreements with each State Lead Agency. Each team member has participated in programs with or on behalf of their state's professional pest management association or their Association of School Business officials.

The *Monroe IPM Model* has been successful in the school environment because the cultural (sanitation) and mechanical (exclusion) strategies of IPM can be incorporated into existing custodial and maintenance activities; for example, sanitation, energy conservation, building security and infrastructure maintenance. Monitoring efficiency is enhanced via the virtual full time presence and perception of the school community.

This model is dependent on an educational approach. It increases awareness among all school occupants that monitoring, sanitation, and exclusion strategies– *proactive* management strategies – are preferable to the more *reactive* strategy of conventional pesticide treatment. Finally, by incorporating IPM into existing school operations (sanitation, maintenance, and classroom education), the school district has overcome the natural resistance of adding pest management to an *already full plate* mentality among institutional staff.

There are performance measures for proving the success of the *Monroe IPM Model*.

First of all, traditional pest management practices in public schools throughout the nation rely on monthly applications of chemical pesticides (normally an organophosphate or synthetic pyrethriod) inside the school environment. Usually, these applications are in the form of liquid or aerosol treatment. By using the *Monroe IPM Model*, most traditional applications will be reduced by 50% for schools in the pilot program.

Furthermore, the effects of traditional pest management related to pesticide run-off which might result in ground and surface water contamination will be reduced.

In addition to actual use reduction in pesticides from adopting the model, the *Monroe IPM Model* allows for:

- Cooperation of the school district through a Memorandum of Understanding that permits access to pesticide records, places a moratorium on existing contractor services in the pilot facilities, and provides for staff training opportunities;
- A statistical comparison with pre-pilot pests, pesticide use, and a pest management cost audit;
- Efforts by the State Lead Agency to participate and extend the successful program; and
- A willingness of the pilot district to become committed to risk reduction and extend the program.

Extension of the *Monroe IPM Model* will initiate pesticide reduction programs among two fundamental audiences: the school community and *change agents*, such as state lead agencies, cooperative extension services, pest control operators, and pest management professionals. The extension of the *Monroe IPM Model* also provides education through training, technological and program planning innovations, outreach materials, pesticide use audits, and cost and exposure data demonstrating risk mitigation to the school community.

The network to transfer the *Monroe IPM Model* pilots to other jurisdictions is underway through EPA, state program managers, and city school districts.

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A PESP Champion's Activities:
Lodi Winegrower's Workbook Goes Online!

The Lodi-Woodbridge Winegrape Commission (LWWC) developed the *Lodi Winegrower's Workbook*, a grower self-assessment workbook. It has become a major tool in their PESP strategy. The workbook helps growers: 1) identify in very specific ways the good things they are doing in vineyards; 2) identify areas of concern in vineyard management; 3) create action plans and a time table to deal with these concerns.

LWWC growers Markus Bokisch, Carol Browe, Nancy Frank at a workbook training session.

The workbook deals with all aspects of vineyard management with chapters on viticulture, soil management, water management, pest management, habitat, human resources and wine quality. It focuses not only on sustainable farming practices but also on growing quality winegrapes.

The workbook contain a vineyard self-assessment and educational information growers can use to implement their action plans.

The workbook program is a major part of LWWC's PESP strategy. It is being implemented by having LWWC winegrape growers invite 5 to 10 of their neighbors to a workbook workshop and, with the help of LWWC staff, evaluate their vineyards using the workbook. The evaluation process takes about three hours.

Over the past two years, over 40 workshops have been held, attended by 250 LWWC growers who manage over 60,000 acres of winegrapes in the district - about three quarters of the total acreage.

LWWC contracted with a web-design company to put the entire workbook online and the project was finished at the end of February.

To access the workbook go to www.lodiworkbook.com. It is also accessible through a link on LWWC's website (www.lodiwine.com).

The workbook is accessible to anyone. There is also a password protected portion of the website that allows the user to evaluate a vineyard using the online workbook and create an action plan. However, passwords are only being given to LWWC growers because LWWC does not wish to have evaluations from vineyards outside the district entered into the website database.

Lodi Winegrower's Workbook was modeled after grower self-assessment workbooks developed by Farm*A*Syst and based at the University of Wisconsin-Madison. Similar workbooks could be developed for any crop. In fact, workbooks have been created for the dairy industry, farmers in Ontario Canada, and cotton growers in Australia through a collaboration with Farm*A*Syst.

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A crimson clover cover crop between rows of winegrapes is part of Lodi's system's approach to vineyard pest management.

MEASURING PESP ACTIVITIES:
A NEW ATTENTION TO ENVIRONMENTAL INDICATORS

This is the first in a series of articles about measuring the progress of PESP members in achieving the goal of pesticide risk reduction.

Like other Federal programs, PESP must measure its progress in achieving its goal. In the case of PESP, the goal is reducing pesticide risk.

EPA uses such measurements or *measures* to implement the *Government Performance and Results Act (GPRA)* and to develop its *State of the Environment Report*. Measures are used to brief Agency management and EPA's Partnership Programs Coordinating Committee (PPCC) on the progress of this and other voluntary programs.

When selecting PESP members for environmental stewardship awards, EPA looks at members' performance measures to ensure that members are making progress in reducing pesticide risk.

To gauge the success of PESP, EPA uses three types of *output* or *outcome* measures:

(1) Administrative Outputs track and measure administrative actions taken by PESP that require or stimulate responses from members.

For example, PESP tracks requests for proposals for PESP-related grants, the number of members and others who receive grant funding, the number of grant projects, and the amount of funds provided to each grantee for environmental stewardship projects. It also tracks the number of Partners and Supporters and the number of strategies prepared by PESP members.

(2) Intermediate Outputs track and measure actions taken by Partners and Supporters in response to PESP or its own administrative outputs. For example, members prepare strategies committed to specific programs to prevent pollution, reduce pesticide risks, and achieve environmental stewardship.

They commit funds and conduct research and demonstration projects advancing solutions for safer pest management. Partners and Supporters track the numbers of their members or customers that participate in the development and implementation of their strategies, attend its training sessions, receive its fact sheets, agree to cooperate and abide by negotiated environmental principals, complete requirements for certification, etc.

These intermediate measures, or outputs, establish the means by which end outcomes may be realized.

(3) End Outcomes and environmental indicators help track and measure actual environmental results that fulfill both PESP's and members' goals for environmental stewardship. Quantifiable reduction or elimination of risky pesticides entering the environment and the reduction of pesticide residues in foods are examples of end outcomes. Reduction in the number of people or animals poisoned by pesticides, reduction in the concentration and/or detections of pesticides in surface or ground water, improved wildlife habitat, increase in numbers of beneficial insects and indicator bird and animal species are all examples of positive environmental indicators.

All outputs and outcomes help construct a chain of events, with each link in the chain playing a role in reducing pesticide risk. End Outcomes provide the key to achieving environmental stewardship and the basis for determining the success of PESP activities.

While EPA and PESP members have been effective in measuring and reporting Administrative and Intermediate outcomes, measuring End Outcomes has been more difficult.

A number of PESP members have been successful in measuring and reporting end outcomes using environmental indicators, which are critical for understanding the dynamic state of the natural environment. Environmental indicators form a sound basis for decision-making on a host of environmental issues, including how limited resources should be allocated and applied. PESP's goal is to help more of our members identify and utilize environmental indicators to measure the outcomes of their environmental stewardship activities.

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Future articles in this series will spotlight progress by PESP members in using environmental indicators.

2003 PESP STRATEGY SUBMISSIONS

As of early April , EPA had received 2003 Strategies from 57 PESP Members (42% of all members). Because strategies have continued to arrive after the February deadline, we anticipate meeting and exceeding the 50% participation level of 2002.

We will work with those Members who have not submitted strategies to assist them in developing and submitting this document– an important component of the partnership. If you are a Member requiring assistance developing your strategy, please contact your PESP Liaison at EPA.

PESP ARTICLE REVIEW:

"AGRICULTURAL SUSTAINABILITY AND INTENSIVE PRODUCTION PRACTICES"

D. TILMAN, K.G. CASSMAN, P.A. MATSON, R. NAYLOR & S. POLASKY. *NATURE* 418: 671-677 (2002)

Today 800 million people suffer hunger and malnutrition. Global human population is projected to increase from 6 billion to 9 billion people by 2050. To feed a 50% increase in the population, agriculture will have to double food production. Whether it can do so without irreparably harming the Earth's ecosystems is uncertain.

Hunger, the potential loss of natural resources, and adverse ecological impacts from the increased use of nitrogen, phosphorus, pesticides, and water explain the authors' focus on agricultural sustainability and intensive production practices. The authors identify "scientific and policy challenges that must be met to sustain and increase the net societal benefits of intensive agricultural production."

In this *Nature* article, the authors review agricultural literature and data and explain their views on the major needs of contemporary global agriculture. They recognize the importance of ecosystem services, increasing yields of cereal foods, improving nutrient-use and water-use efficiencies, and preventing disease and pest infestations. The authors suggest that many intensive agricultural practices are responsible for adverse environmental impacts such as the eutrophication of water bodies and the salinization of soils.

To advance sustainability, the authors examine practices that can be integrated into intensive agriculture, such as precision technologies, cover crops, crop rotation, and buffer strips. Through this review of the literature, the authors provide context to support their definition of sustainable agriculture:

> *...as practices that meet current and future societal needs for food and fibre, for ecosystem services, and for healthy lives, and that do so by maximizing the net benefit to society when all costs of the practices are considered....there must be a fuller accounting of both the costs and benefits of alternative agricultural practices, and such an accounting must become the basis of policy, ethics, and action.*

To achieve sustainability, the authors propose policies that assign values to all outcomes of agricultural land use decisions. These values are based on ecological, economic, and ethical criteria so that land uses maximize net benefit to society, not just the land owner. Because "agriculturalists are the chief managers of terrestrial, useable lands," the authors argue that growers must be influenced to adopt sustainable agriculture.

With assistance from agricultural extension services and the adoption of IPM systems, decision makers – growers, ranchers, foresters, and others – can be encouraged to consider the costs and benefits of alternative agricultural practices. They can, thereby, select the practices that offer the greatest net benefit to society.

Government policy, the authors argue, should encourage growers/ decision-makers to value, in addition to the benefits of increasing harvests of food and fiber, the important benefits of reducing water runoff, absorbing carbon dioxide, preserving biodiversity, and restoring fertility to soils. These decision-makers must also consider ecosystem services that may be lost and adverse environmental impacts that result from certain agricultural practices.

In addressing how a local decision maker can evaluate the societal value of alternative practices, the authors suggest using measurements for agricultural practices that have demonstrated environmental benefits and can be audited. For example, instead of clear cutting a forest for lumber and converting the land to agricultural use, the decision maker might consider among several options: a managed forest for lumber and wildlife habitation; limited forest plots or hedgerows; buffer strips; no till, cover crops; and using safer or reduced-risk pesticides. Such practices can be included in an integrated plan and audited by stakeholders.

As for incentives to landowners, an obvious option is to subsidize practices that improve sustainability. An audited program designed to be sustainable would qualify the land owner or decision-maker for subsidy payments. Other incentives include taxes on purchases of fertilizers, pesticides and water to reduce use; pricing policies that reward environmental stewards; and environmental labeling that attracts consumer purchasing power.

The authors suggest net benefit to society and ecosystems as a paradigm for focusing research, development, and extension dollars on sustainable agriculture for both developed and developing countries. However, current expenditures for agricultural research are inadequate: below 2% of agricultural gross domestic product (GDP) worldwide; 5.5% of agricultural GDP for developed countries; and less than 1% for developing countries.

To feed the world in the 21st Century, the challenge is to advance sustainable agriculture by funding projects that develop and apply new agricultural practices and by rewarding land owners who adopt these practices.

HELP US REACH YOU

We are interested in reaching individuals and organizations with an interest in PESP and pesticide risk reduction. To assist us in this effort, we maintain an extensive list of contacts.

We realize that contacts change, people move, and e-mail addresses change over time.

In an effort to minimize mailing expenses and paper waste, we ask your assistance in updating our contact information. There are three ways you can help. Please let us know if:

(1) your mailing address, telephone number or e-mail address has changed within the past year;

(2) you prefer to read the PESP Update on EPA's website and receive only an e-mail notification of its availability; or

(3) you are no longer interested in receiving this publication.

You may contact us by sending an e-mail to pesp.info@epa.gov OR by leaving a message on the PESP InfoLine at 800-972-7717. Please provide your name, affiliation, and address when indicating the changes that should be made to your information.

Thank you for helping us more efficiently reach you.

PESP RESOURCES

Address:	1200 Pennsylvania Ave NW (7511C) Washington, DC 20460
PESP InfoLine:	800-972-7717
EPA's PESP Web site:	*www.epa.gov/oppbppd1/PESP*
PESP e-Mail:	*pesp.info@epa.gov*
You may reach all EPA personnel by e-mail at:	*lastname.firstname@epa.gov*
National Foundation for IPM Education's PESP Website:	*www.pesp.org*

To suggest articles for the PESP Update, please contact us at 800-972-7717 or pesp.info@epa.gov.

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